Research Article

The nurses' experience of possible HIV infection after injury and/or exposure on duty

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The purpose of the research was to describe the experience of nurses in the studied hospital who had been exposed to possible HIV infection during injury or exposure on duty.

A qualitative phenomenological descriptive study was used to describe the emotions and non-verbal reactions of the twelve participants during two subsequent in-depth interviews. These were conducted post-exposure, and after counselling and prophylactic treatment took place. The nursing staffs from a selected private hospital were included in the study after exposure of blood and/or human body fluid.

After completion of the study, it was found that the exposed staff's experience had two main categories. Firstly, they were grieving for the loss of the concept of being healthy and invincible, blessed with nursing skills and definite goals in life. The bereavement process included phases of denial, anger, anxiety and fear, with recurring thoughts regarding the adverse events, as well as acceptance which developed with time.

The bereavement process and shock of the exposure had wider consequences to the family, as well as an impact on the working environment. Most participants reported that they experienced genuine support and compassion from colleagues, at home and in the community.

The second category of experience was the physical side effects which participant's developments developed due to the prophylactic antiretroviral therapy. Some participants experienced severe difficulties due to the treatment, while other had fewer problems.

Some proposals to adjust and possibly improve the hospital's exposure surveillance system were developed from the research results, including that a 24-hour crisis management system be implemented for exposed staff members; that support groups be started for staff, colleagues and family members; that all staff receive orientation and support during unfamiliar procedures or placement in unknown departments; that all exposures-on-duty be investigated and studied so that pro-active or preventive measures may be devised; and that problems with staffing and working climate be resolved.

All the findings and proposals were subsequently addressed to the relevant members of the Hospital Management.

If healthcare services wish to retain nursing staff in future, more will need to be done to prevent all types of exposure-on-duty and, if they do occur, to anticipate, manage and shorten the subsequent period of the professional nurse or learner's bereavement.

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Introduction

The likelihood of being exposed to infection by the human immunodeficiency virus (HIV) while performing patient care in the health service increases every year. As medical technology develops, routine patient care, including the routine administration of injections and other intrusive procedures, becomes more complicated (Stoker, 2004: Online). Increasing numbers of the population of the Republic of South Africa are diagnosed HIV positive every day (Department of Health RSA Ante-natal Surveillance Report 2004). These people are admitted to hospital as non-infected persons and are then found to be suffering from the acquired immuno-deficiency syndrome (AIDS).

As a result there is inevitable increasing exposure of busy nursing staff to the presently incurable HIV infection (Department of Health Report National HIV and Syphilis Antenatal Sero-prevalence Survey in South Africa 2003; Haiduven, 2004: Online). Anecdotal evidence of this was found during follow-up visits to the nursing staff who had been involved in injury or infection on duty incidents in the hospital used in the study (hereafter the hospital). Interviews immediately after the exposure incident showed that possible HIV infection was an overwhelmingly frightening thought to most of the participants.

Problem Statement

Despite the enormous amount of available literature about the clinical process of counselling and management of post-injury/exposure on duty, little literature was to be found in scientific sources regarding the experience of South African nurses who had experienced the process (NISC DISCover Report, 2003).

According to the hospital's monthly infection control reports, about 0.8% of the staff corps were exposed every month to possible HIV infection due to injury and/or exposure-on-duty (hereafter referred to only as exposure). (Studied hospital: Records of the Human Resources Department 2004).

Intercolleagial conversations during follow-up actions over a period of three years revealed that not all the exposed staff members who were counselled and managed had a positive experience of the process, even though they were correctly managed according to protocol (Studied hospital. Records of Human Resources Department 2004).

It appears as though the staff's experience of exposure can directly influence their work and judgment. If more information about this could be collected, coping mechanisms against the impact could be put in place early to ensure that service delivery to this special group of staff is not impeded.

The aim of the study

The aim of the study was to describe the experience of the nursing staff of the studied hospital that was possibly exposed to HIV during the performance of their duties, and to recommend better management of such incidents.

Research design

A qualitative phenomenological descriptive study was undertaken, as the aim was to describe and study the individual experience of a person after exposure to possible HIV infection (Burns and Grove, 2005:55-56, 232-233). Without preconceived ideas the emphasis was placed on the *participant's* experience of events and circumstances rather than the researcher's interpretation thereof (Brink, 1996:13; Polit and Beck, 2004:253).

Research technique

In-depth interviews were conducted that led to conversations that produced direct quotations, and that in their turn formed the basis of the study (Brink, 1996:119-120); Polit and Beck, 2004:349-350).

The experience of the nursing staff regarding exposure to HIV was described by conducting two unstructured in-depth interviews with each of the exposed members of the nursing staff and the gathered information was reproduced. The first interview was conducted as soon as possible after the exposure took place, while the second was completed three months later, at the end of the surveillance period.

The research question of the study deals with the experience of a staff member who has been exposed to possible HIV infection and was formulated as follows: *"Describe your experience regarding your possible exposure to HIV after your injury or exposure on duty incident".*

Population

For the purpose of this study the population was regarded as all members of the nursing staff on the establishment of the hospital who had been exposed to possible HIV on duty due to an injury and/or exposure incident.

Unit of analysis

All members of the nursing staff in all the wards and departments of the studied hospital, who had been exposed to possible infection with HIV while on duty, were, for convenience, automatically approached to take part in the study. The reason was the relatively small number of staff who was exposed daily to HIV infection on duty due to needle-stick or splash accidents. Every person who met the criteria in the period 1 March 2004 to 31 October 2004 was approached regarding inclusion in the study after complete counselling and treatment. Those who agreed were added as participants to ensure accuracy and avoid bias, until data saturation was achieved (Babbie, 2004:190-191); Burns and Grove, 2005:750).

The following inclusion criteria applied:

- Afrikaans- and English-speaking nursing staff of the hospital that had been exposed to possible HIV infection by exposure/injury on duty incidents.
- The participants should all have been on the hospital's official surveillance list to ensure that the frame of reference, terms and standard exposure procedures that were used, were known to them all.
- Exposure must have taken place during official duty hours on the hospital premises while performing patient care.
- The exposed staff member must have been registered with the South African Nursing Council and appeared on the hospital's establishment and have met all other staff criteria.
  Consequently both registered professional nurses and pupil nurses of the hospital's private training establishment were included in the study.

- The first approximately twelve weeks of the official six months surveillance period for each participant were included in the research period. The first interview took place as soon as possible after the exposure incident to ensure that the events were fresh.

Exclusion

- Staff members, who tested HIV positive at the time of the injury/ exposure on duty incident, were excluded from the study as the risk of being infected with the virus on duty no longer existed. These staff members were referred directly for counselling.

Data saturation was used as the measure for the size of the unit of analysis in the study. Saturation of data is achieved when themes and descriptions start repeating without any new data being collected (Polit and Beck, 2004:57). Data collection was continued until saturation of information was achieved after eight months with a total of twelve participants (N=12).

Exploratory interview

An exploratory interview was conducted with two exposed staff members to ensure that the required information could be collected and to try and determine any unexpected factors beforehand (Brink, 1996:213; Burns and Gove, 2005:42, 396; Polit and Beck, 2004:196).

There was a three-fold advantage in conducting the exploratory interview: Firstly, the researcher could test whether the central research question would ensure the desired response. Secondly, there was the possibility of ironing out potential problems regarding the interview technique, inadequate time for the in-depth interview, and ambiguity in the way questions were worded. Lastly there was the opportunity to practice the process and to analyse the small amount of data quickly to ensure that the envisaged procedures progressed effectively (Brink, 1996:60,174).

Both in-depth interviews with the participants in the exploratory interview elicited the desired responses. The information was saved on audiotape and transcribed directly after the in-depth interviews. Analysis of the results of the two in-depth interviews showed that the research question was undoubtedly clear to both the participants. The collected data and the selected method of documentation functioned effectively.

Data collection

After exposure the researcher conveyed each participant's first blood results verbally to him/her. She explained that a study was being conducted and enquired whether they would be interested in taking part in it. All the exposed staff members who were approached to participate agreed in writing to do so. Participants were anonymously included in the study and a verbal appointment for the first in-depth interview in the hospital was made with each one as soon as possible.

The researcher personally interviewed each participant as all of them knew her and a relationship of trust already existed.

The first 45-60 minute in-depth interview with each participant was conducted in the hospital in the infection control office or in a quiet office in the participant's ward, where privacy could be ensured.

An appointment for the second interview was made at the end of the first one.

Field notes about the participants' non-verbal communication patterns or other observed mannerisms were added after each interview and later transcribed with the interviews. In order to ensure confidentiality for the participants, the two transcriptions of the interviews were filed under a successive reference number as (a) and (b) and the data processed as soon as possible.

In view of the warnings of Brink (1996:153) and Polit and Beck (2004:347) about the possibly inhibiting effect of the tape recorder on the participants, it was kept in a drawer, with their consent, and only the microphone was placed on the desk near the participant's chair. The participant was encouraged to relate the incident in her/his own words and sequence.

The researcher used communication skills to obtain information: eye contact, non-verbal behaviour, listening skills, silences and references back to statements were used to facilitate the flow of information during the in-depth interviews (Okun, 1997:18-19,123).

Data analysis and interpretation

Data analysis encompassed the conceptualisation, contrasting and equalisation of the final highly detailed data of a small group of participants, to identify common patterns, themes or trends. Information was repeatedly sifted, arranged and described to create a clear and understandable construct that could later be of use to the nursing profession and other researchers (Tesch, 1990:91-93; Brink, 1996:120; Labuschagne, 2003: Online).

Tesch's model of data analysis was used as a guide-line. Words and phrases were categorised and not only counted (Tesch, 1990:37-38, 92; Pope, 2000: Online; Ryan and Weisner [s.a.]: Online). In the course of time all the observed meanings were placed in categories according to appropriate criteria such as certain word choices or meanings. Conceptual categories were not determined beforehand, but developed out of the systematic process. In the study both the emotional and physical experiences of the participants were identified as categories. This in turn led to the development of the subcategories.

By repeatedly sifting and arranging data, analytical and theoretical ideas were developed which were further refined, adapted and grouped together. Broad themes were created where new data was found (Pope, 2000: Online; Burns and Grove, 2005:547-548, 596). In the end an understandable framework (figure 1) could be created that summarised and set out the totality of the unique experience of the participants (Tesch, 1990:91-93; Labuschagne, 2003: Online).

Data analysis actually began during interviewing. This process was found to flow parallel with data collection and was even integrated with it. According to Tesch (1990:04-73) and Pope (2000: Online) this method of work is acceptable.

Trustworthiness of the study

Trustworthiness affects the measuring instruments used in research - in this case therefore, the researcher herself. The

FIGURE 1 : Framework for data analysis

CATEGORY	SUB-CATEGORY	THEME
Emotional experience	Grieving response: 1. Denial	*"I didn't want to know..."* *"I'm not ready for this".* *"It's over. We just carry on..."* *"The thought of a repetition of everything was just too much".* *"I delayed and delayed, until a nurse told me to go"*
	2. Anxiety and fear	*"I was so frightened..."* *"I just could not go through it again"* *"It's a nightmare. I want to get married..."* *"I wanted to stop nursing. I'm always frightened"*
	3. Anger	*"I'm angry all over again"* *"It makes me furious to think..."*
	4.Acceptance	*"I know I'm exposed"* *"I now have so much more empathy with the HIV positive patients. There is satisfaction in nursing these patients".* *"It's part of the work"*
	Experience of support	*"It was very good...I'm satisfied with the support".* *"I have no complaints"* *"I think a full-time person should be appointed for this"* *"I was well supported at work"* *"My husband understands what I had to go through"*
	Thoughts about the events	*"We were so busy, there was no time to think about yourself"* *"It was only when the note about the follow-up blood test came that I thought about it again"* *"I had forgotten all about it until now"* *"I'm always far more careful now"* *"I'm always conscious of the risk'".* *"I remain afraid"*
Physical experience	Side-effects due to pro-phylactic treatment	*"I didn't want to take the pills again. Those pills kill you"* *"I was so afraid I would get sicker from the medication"* *"Everyone speaks about the effect of the pills on you, and it's true – they make you feel ill"* *"The medication was my greatest fear"* *"The side-effects...!"* *"Oh no, I was slightly nauseous, but that was all".* *"I was not nauseous".*

skills the researcher evinced eventually contributed to the scientific acceptability of the study (Brink, 1996:124; Polit and Beck, 2004:434).

The researcher possesses the necessary counselling skills and abilities demanded by a Rogerian client-centred approach to interviewing and, in effect, acted only as a sincerely accepting and reflecting *person* and listener and not as someone giving direction (Okun, 1997:122-123; Burns and Grove, 2005:637-640). Clinically speaking the researcher, as a registered professional nurse and infection control consultant, possesses the necessary interviewing skills.

credibility, transferability, dependability and confirmability were accepted as criteria for trustworthiness (Polit and Beck, 2004:430-431, 437; Burns and Grove, 2005:383-385, 627-632).

Credibility

The core of credibility in qualitative research is the content of the participants' accounts, as well as the researcher's ability to collect that information consistently, document it accurately and to express it repeatable (Silverman, 1997:202).

The trustworthiness of the information was ensured, among others, by the creation of the central research question to keep the in-depth interviews focused and to avoid straying from the subject, as well as by taking complete notes, transcribing the interviews as soon as possible and then studying them repeatedly (Okun, 1997:154, 242-243).

All knowledge garnered during the study was deduced and developed only from the participants' own experience. Audiotape transcriptions and field notes were strictly adhered to in data analysis and any possible bias on the part of the researcher was limited (Brink, 1996:120). The study process that was followed was carried out as consistently as possible to enable a following researcher to repeat the study over a period of time and to obtain similar results.

Transferability

Transferability has to do with the stability of a research design and the possibility of generalising the information of the participants from one study to another group or broader population (Polit and Beck, 2004:435; de Vos, Strydom, Fouche and Delport, 2007:346).

The detail data of this study is not transferable because the individual experiences of nursing staff regarding their exposure to possible HIV infection after an injury and/or exposure on duty is unique to every individual in the hospital. Nevertheless the findings and deductions are useful to demonstrate the experience of exposed staff members so that the effectiveness and/or deficiencies of surveillance procedures may be evaluated and corrections affected.

Dependability

The accuracy and authenticity of scientific findings in qualitative research are important for the determination of dependability. The degree of dependability can be determined if the following can be determined: (1) to what extent the conclusions of the researcher represent the observed reality, and (2) whether the research constructs measure or represent the true range of human experience. If there is agreement between the observations of the participants and the reader regarding the study, its dependability is largely ensured (Polit and Beck, 2004:434-435; Speziale and Carpenter, 2003:38).

Data triangulation and tracing negative cases or incidents that could provide contradictory information, were used to check dependability.

Confirmability

Confirmability is the guarantee that the data findings, conclusions and recommendations are supported by literature and that there is similarity between the researcher's interpretation and the evidence. Confirmation may be obtained by doing an audit of the data or by obtaining the participants' response to the findings (Polit and Beck, 2004:434-435; Speziale and Carpenter, 2003:38).

Due to the fact that there was such a limited amount of evidence-based literature available about the experience of exposure of South African nurses to HIV infection on duty, international literature that included similar exposure of health care workers, doctors and medical students was used. The reason was that these "health care workers" would have included nurses and that the information and conclusions of other studies would probably be transferable to this profession too.

Ethical aspects

In order to protect the rights of all the participants in the research process, consent to undertake the study was obtained from both the Ethics Committee of the Faculty of Health Sciences of the University of the Free State and the hospital. Written permission obtained from the participants was available in Afrikaans and English, although all the participants in the study used Afrikaans as their language of preference. The in-depth interviews were recorded on audiotape after consent was obtained from the participants (Babbie, 2004:72, 80-81).

The four basic ethical principles for researchers who do qualitative research, i.e. autonomy and respect for others, benevolence, equity and fairness, were universally applied (Terre Blanche, Durrheim and Painter, 2007:67-68).

All data was handled confidentially and depersonalised, audiotapes were destroyed after completion, no remuneration was paid but participants have access to the final research results, privacy was ensured at all times and participants were referred for further counselling if necessary and if they agreed.

Data interpretation and literature check

Occupation-related exposure to HIV is generally accepted as a traumatic situation with a high probability of direct or indirect harm to health and even loss of life (Balachandran, 2002: Online; Bandolier Extra, 2003: Online; Stoker, 2004: Online).

Participants in the study showed that any occupation-related exposure to a patient's blood or body fluid was very traumatically experienced.

Description of the unit of analysis

The unit of analysis consisted of twelve participants from the nursing staff of the hospital who were exposed to possible HIV infection due to an injury and/or exposure on duty.

Age and qualifications

The participants were between 18 and 57 years old (average age: 33 years), while their clinical experience ranged from four weeks to 39 years (average: 15 years). Eight participants were registered professional nurses, one a registered professional enrolled nurse, while three learners were busy with their basic training for the rank of registered professional enrolled nurse. Two learners were in their first year and one in her third year of study.

Type of exposure

Of the twelve participants seven had sharps injuries and five had been splashed in the face with human blood or body fluid. It was interesting to note that it was the learners who had splash accidents while the older, trained and qualified registered professional nurses had mainly sharps injuries. A possible explanation is the fact that the learners were all performing basic physical patient care during exposure, while most of the qualified staff was busy with administering medication or with more specialised tasks.

Emotional and physical aspects

The transcriptions of the twenty-four in depth interviews were repeatedly studied and the data divided into two main categories of experience, that is, emotional experience of the exposure and the physical experience of side-effects after prophylactic anti-retroviral treatment. Sub-categories with themes were

identified under each category. The sub-categories under emotional experience included: *"Grieving response"*, *"The experience of support"*, and *"Thoughts about the event"*. The sub-category *"Experience of side-effects due to prophylactic treatment"* was identified under the category *"Physical experience"*. Themes obtained from the transcriptions were identified under each sub-category (See Figure 1).

Emotional experience of the exposure on duty

The emotional experience of the exposure was, without exception, emphasized most by all the participants, and had, according to them, a long term impact on their emotions and even their method of working.

It affects one emotionally and physically, especially as I've now got these [side] *effects* [of the prophylaxis].

These feelings varied between anxiety, resignation and acceptance, and more negative emotions such as fear, anger and loss.

The grieving response as part of the grieving process

A study of the experiences expressed by the participants shows that their descriptions correspond to the typical grieving process described in the literature (O'Neill and McKinney, 2003: Online). The grieving process includes a *grieving response*, as was clearly indicated by the participants in the study. The grieving response consists of the experience of various emotions such as anger, fear, denial, depression, resignation and acceptance (Pecorino, 2002: Online; Kessler, 2005: Online; Leaver, 2006: Online).

Behavioural and emotional variations are undoubtedly part of the active grieving response (O'Neill and McKinney, 2003: Online). The participants therefore grieve over the loss of their basic beliefs about life and their own concept of personal health and inviolability (GP-Training.net, 2006a: Online), although a number of external manifestations of these were observed. This experience is one aspect of post traumatic stress disorder (GP-Training.net, 2006a: Online). The participants may unconsciously have measured the shock of the moment against the expected change it will cause in their lives. Expected sorrow may therefore develop (O'Neill and McKinney, 2003: Online).

I got a fright when I pricked myself. You wonder what will happen. But then you think of the patient lying there – she is only nine years old. One of the XXXX's children. Then I went to Sister LR and she said I must fill in everything. At first I wanted to leave it, but then I thought one can't just leave it these days. One never knows. One doesn't have to be thin, does one?"

The practical effect of sadness was noticed in the participants as adjustments to professional methods and in the family context needed to be made, for instance condoms suddenly had to be used in a stable marriage.

"We didn't use condoms. I should have told my husband but I was not ready to tell him".

A grieving person experiences sadness, anxiety and depression before the loss and change can be assimilated and accepted (Cross Creek, [s.a]: Online). Statements such as *"I always thought..."* and *"How will I...?"* are often used, as the participants did.

"I never thought I would come upon such a situation".

"How do I tell my husband? He is sometimes so hostile towards my job".

The idea that the exposure could possibly have been avoided often complicates the person's grieving process, such as the experience of side-effects due to prophylactic treatment (HIVAN, 2003: Online; Medical Library, 2004: Online).

From the responses of the participants it was clear that the elements of the model of Kübler-Ross (Bowers, [s.a]: Online) best correspond with the emotions that the study participants experienced. Denial, anger (that includes fear and anxiety) and acceptance were clearly demonstrated in the study. The narratives of some of the participants revealed elements of depression and sadness in their interviews, while negotiation, where the person, according to Kübler-Ross, pleads with a "higher power" to undo the loss, was never directly verbalised by the participants (Gorle, 2002:Online; MentalHelp.net, 2005:Online).

Denial

Denial is the inability or unwillingness to accept or admit the shock or expected loss (exposure), and often occurs shortly after the incident. The incident may be experienced as a bad dream where everything will return to normal when the dreamer awakens. People often go through periods of disregarding or standing aloof from the reality. Their attention is so thoroughly diverted by other activities and thoughts that they do not think of the exposure or expected loss (Macnair, 2005; Online; Kessler, 2005: Online; Leaver, 2006: Online).

The latter phenomenon was clearly observed, where a number of participants often remarked spontaneously that they still could not believe that the exposure had taken place, or could not believe that they had forgotten about it.

"Generally speaking I'm always very careful – I still can't understand how it happened".

Others evidently had a more pragmatic attitude, but still hesitated to seek treatment or help immediately, did not disclose their exposure or speak openly about it, which may indicate denial of the impact of the incident (Brahm, 2004:Online; Callahan, Jaffe, Segal and Segal, 2005:Online).

"...and I had things to do here. I still don't grapple with the idea that I'm going to get AIDS".

According to experts such as Kübler-Ross and Horowitz denial is a normal coping mechanism with the aim of making the acute pain of the loss or shock more bearable and less overwhelming (Psychosocial impact of HIV/AIDS, [s.a.]:Online).

"And the main thing is one is in denial a little, and one does not really want to talk about it, one doesn't want to deal with it" [laughs furtively].

A person in denial often feels cold and may appear to be without feeling or apathetic (Macnair, 2005: Online; Leaver, 2006: Online).

"You know, I do not feel like it now! [Vehemently, waves her hand]. *Not again...If the staff had not insisted so, I would have been at home now".* [Staff member comes across as cold and clinical when telling of her experience, but becomes heated when speaking about

the incident].

Although some participants hesitated to report their exposure immediately due to denial, this response did not prevent them from actually doing so and all the staff received treatment.
"I decided to take the pills for my own safety. If there could be ***something,*** *they could have prevented it or taken it away".*

All four participants who had previously been injured on duty felt that the process of completing all the documents took a great deal of time, resulting in a loss of productivity. This phenomenon was also found in the literature (Balachandran, 2002: Online).
"*...I was in Emergencies for about two hours. In the meantime the work stood still".*

The literature review for the study revealed that 40-70% of exposed staff world-wide fail to report the incident at all. Denial of exposure can lead to under-reporting and is a great source of concern to health services (Wilburn, 2004: Online).

The participants differed, for personal reasons, about what they told about the exposure incident:
"I did not tell my child – I did not want to expose him... I did not tell my father. I did tell my sister and we decided that we would cope with it and see what happens. I don't want my father to be worried – he is so protective of his little girl".

Anxiety and fear

Anxiety and fear were two strong emotions reported by most of the participants in the in-depth interviews. The two exposed learner nurses experienced overwhelming anxiety about the splashes of body fluid in their faces, while the needle-stick and sharps injuries were experienced with greater equanimity by the older, qualified participants.
"I was in Emergencies for less than two hours and of course I said in the first hour already "Give me my pill! Give me my pill" [laughs a little].

According to Meienberg *et al.* (2002: Online) and O'Neill (2003: Online) factors such as the level of training of the exposed person without a doubt contribute to differences in the experience of grieving, as is clearly demonstrated in the following quotation from the interview with one of the learner participants:
"...I got a very big fright. One of the sisters said it was nothing, but when I phoned Sister O [lecturer] *and she said I must go to Emergencies I was very frightened. I thought now I'm going to die!"* [Youngest, wide-eyed, inexperienced learner].

"Anxiety" is defined as a vague, uncomfortable emotional condition, during which feelings of uncertainty, discomfort, uneasiness and dismay occur without a specific reason. *"Fear"* is similar to anxiety, but has a specific reason or cause (Loughborough University, 2005: Online). During sudden intense emotion anxiety and fear are often similarly experienced.

The participants' self-reporting in the first interviews of fatigue, forgetfulness, loss of concentration and purposeful performance, were attributed to anxiety disorder if the participant indicated that she felt better. Haiken and Herscher (2004:Online) state that when the temporary tension has been relieved and the anxiety is past, the body and brain recover and the person will gradually begin to function optimally until full capacity is reached.
"I read the information leaflet again and saw: Why, they did tell me that, and I did read it, but I was so shocked [at that moment] *that I couldn't remember it".*

Fear and guilt feelings may combine to prevent the exposed person from seeking help, talking about the incident or even trusting others.
"I told the people at home, but this sort of thing happens [with one at work] *and you don't want to talk about it. It feels too ridiculous..."* [Did not want too many colleagues or others at work to know].

The unpredictable nature of HIV infection after exposure-on-duty leads to feelings of hopelessness, frustration and being overwhelmed, as well as fear that friends and family members will withdraw from one (Goldblum, [s.a]:Online).
"Look, I tell my husband nothing. I'm too afraid of telling him ... he will... not worry with me or anything. He knows now, but I didn't tell him when it happened". [Second in depth interview, three months later].

Research has shown that health workers often experience traumatic anxiety after exposure, in spite of the availability of effective anti-retroviral prophylaxis (Wnuk, 2003: Online), but that evidence-based research about this is scarce (Meienberg *et al;* 2002: Online).

Anxiety was expressed as follows by one of the participants:
"That's what frightened me. Accidents happen so suddenly and I'm exposed to them every day. I was in such a state when it happened". [Staff member working as a surgical scrub nurse in a general theatre, where the surgeon accidentally pricked her with a used scalpel].

After anxiety and fear anger was the next prominent emotion described by the participants.

Anger

Anger is the experience of strong feelings that vary from slight unhappiness, embarrassment, irritation or hostility to extreme antagonism, and is caused by actual or supposed harm, injustice or damage (Brahm, 2004: Online).

Ten of the twelve participants reported anger, irritation, frustration or distress at the first in-depth interview, although these emotions were expressed in a variety of ways such as impatience, irritation or tearfulness.
"At the beginning I was angry with the patient and didn't want to go into the room again. But I did go in again later".

Some of the participants indicated that they were angry, unhappy or annoyed with themselves about the role they felt they had played in their own exposure.
"I was so angry with myself – I said I would never again show anyone how to inject insulin ... it's not worth it".

Some of the participants reported anger towards the patient in question, their employer or a surgeon, for the circumstances under which exposure took place.
"In the first place I was annoyed with the doctor [who pricked her with the used scalpel in the theatre]. *The doctors are actually very naïve about this thing. They laugh at you when you put on your goggles ... and they mustn't hurry us. It's about hurry. They ask for three things*

at once and you try and give them all three at once".

At the second in-depth interview the emotion that emerged strongly was one of greater acceptance of what had happened.

Acceptance

"I understand that it's part of my job – a risk we take".
"I want the [surveillance] *period to pass now. I want to donate bone marrow".*

As can be gathered from the quotations, acceptance is a stage in the grieving process in which the exposed person makes peace with the traumatic event, develops a future-orientated outlook to plan for the future with more energy and re-establishes contact with other people (Brahm, 2004:Online; Leaver, 2006:Online).

Often the acceptance of reality is an indication that the person has regained emotional balance and that recovery is taking place (Interdenominational Church, 2005: Online).
"I think it helped that I didn't sit and brood and that I wasn't too worried. I think that contributed to the fact that I accepted it ...I accepted that I had done what I could, and had exercised a little control".

When someone who has experienced a grieving response is ready to speak openly about the events without experiencing excessive sadness or guilt, the process has been [almost] completed (GP-Training.net, 2006b: Online).
"In the meantime I've forgiven myself – it was my own fault, and since then things have looked much better. It was an eye-opener, really an eye-opener. Now I see well. It could have been much worse".

During the trauma of exposure and the experience of the personal grieving process thereafter, all the participants in the study told of the importance of the support they received.

*Although depression is one of the phases of the grieving response (*Callahan *et al.,* 2005: Online) *it is not discussed as it was not one of the responses emphasized by the respondents.*

Experience of support

It was quite evident that the private lives, family and next of kin of the exposed staff members were affected by the exposure. There are always inevitable and increasing consequences, such as the side-effects of prophylactics and measures to prevent further transmission of infection between spouses (HASA, 2003:11-14). Eleven of the participants (N=12) related that they were emotionally supported in the surveillance period by their spouses, family members and colleagues.
"No, I told them [family]. *One of my daughters, L ... you know, I'm a grandmother of two little ones ...teased and said she wouldn't come near me, but they didn't mean it. They did support me. My husband told me to drink the stuff* [anti-retroviral prophylactics]. *When I said there are so many disadvantages in the pamphlet, he said but that won't make any difference".*

Thoughts about the incident

Five of the participants related that after three months they still felt affected and tense when they thought about the exposure incident. Excepting three of the participants who specifically said that they wanted to forget about the incident as soon as possible, the rest indicated that the experience would remain part of their memories for the rest of their lives.

"It's a relief that the results were negative, although I didn't really expect anything else. But it's always at the back of your mind ...just supposed... ".

Physical experience of the exposure –on-duty

Eight of the participants in the study experienced physical side-effects due to the treatment with anti-retroviral therapy. A particular problem that emerged in the study was that the side-effects of treatment with anti-retroviral were very closely linked to the physical symptoms experienced in the grieving process. Complaints of nausea, with or without vomiting, insomnia, fatigue and exhaustion; palpitations, light-headedness and dizziness; muscular tremors and trembling; diarrhoea, headache and malaise often occur in both stressed and traumatised persons as well as in those experiencing side-effects of prophylactic anti-retroviral therapy (McNicholl, 2006:Online).
"I vomit in any case when I'm nervous".

All eight of the affected participants indicated that they personally thought that their complaints were directly related to their treatment with anti-retroviral.

Experience of side-effects after treatment with anti-retroviral therapy

All the participants were treated prophylactic ally for between three and 28 days, and eleven of them completed their therapy as planned. Only one participant was forced to discontinue treatment early for medical reasons. Prophylactic anti-retroviral therapy was the aspect of the surveillance process negatively experienced by all the participants. Without exception all of them feared the effects of this treatment.

"...No, I can't come back to the treatment <u>every</u> time! But the treatment was the nail in my coffin, really Sister! I was in my coffin, Sister!" [Second interview, during which she repeatedly referred to the effect of the medication].

The treated participants experienced side-effects such as malaise, nausea, vomiting, abdominal discomfort and headache. These symptoms correspond to the known possible pharmacological side-effects of the drugs (McNicholl, 2006: Online).

Four participants reported no side-effects from the prophylactic treatment, and in spite of their experience of side-effects, only one of the remaining eight discontinued the course of anti-retroviral therapy prematurely on medical advice.

Field notes

All the observations and notes were taken into account during the transcriptions so that the data could be reproduced completely. Non-verbal behaviour was added next to the quotations.

Conclusions and recommendations

Exposure on duty to possible HIV infection was a traumatic experience for the participants in the study. As stated by Bandolier Extra (2003: Online) and Stoker (2004: Online), its impact was not limited to the exposed person alone – it rippled outwards to the family, employer and the subsequent job performance of the victim.

The post-exposure experience of the nurses had such an effect on their emotional and physical condition, as well as on their performance, that specific action on the part of the employer was justified (Stoker, 2004:Online).

Emotional aspects

The emotional aspects of exposure to possible HIV infection and consequent support led to most comment on the part of the participants.

The experience of the grieving response by the exposed participants

The literature review provided sufficient evidence that the participants were in at least one of the stages of the grieving response during the interviews.

Experience of support

Participants reported that the protocols and infrastructure of the hospital provided them with immediate and satisfactory physical and emotional support. However, the application of the protocols and quality of service to individual participants was influenced by the pressure of work in the Emergency department and the unique empathetic approach of the individual counsellors who worked with each participant.

Thoughts about the events

After three months a few of the participants reported that they continued to apply the safer behaviour pattern for all patient care procedures that were introduced after their exposure.

Staff that may be exposed to HIV infection on duty therefore require continuing support in terms of their own needs, not only in the crisis period immediately following the incident.

Recommendation

There should be a 24-hour crisis management service available to exposed staff members. The service should come into operation automatically after an exposure incident to help the staff member with the necessary compassion and to provide emotional support. (Chagdud Tulku, 2006: Online). A designated team of trained professionals (possibly including an infection control and/or occupational health nursing consultant or counsellor, a doctor, a psychiatrist and/or a psychologist) should manage the immediate post-exposure counselling, blood tests and prophylactic treatment of the staff member in terms of the hospital's established protocol.

A buddy system may be built into the support system, where a previously exposed person or group who has/have worked through the recovery period, support(s) a recently exposed staff member in earnest (Holmes, 2003: Online; McNally, 2004: Online).

Physical experience

Although the emotional aspects of their exposure on duty weighed significantly more heavily than the physical experience on a number of the participants, the physical experience carried considerable weight in terms of the total view of the findings of the study.

Recommendation

An exposed staff member, who experiences problems while receiving prophylactic anti-retroviral treatment, should negotiate about service concessions with nursing management and the occupational health section of the hospital. Service concessions such as flexi-time, the granting of sick or compassionate leave or the possibility of voluntary temporary or permanent transfer to another ward with lighter service demands, other working circumstances or an alternative patient profile may also be negotiated (Stoker, 2004:Online). The aim would be to keep the staff member on duty as far as possible, but to accommodate her/him to ease the treatment.

To refute the fear of the side-effects of prophylactic anti-retroviral therapy, positive information about its effectiveness and availability and its successful management must be emphasized at every information opportunity such as World Aids Day and any other occasion, without glossing over the potential of side-effects or problems.

General conclusions

Possible reasons for the exposure of participants

Most of the registered professional nurses were exposed to injury with sharps such as intravenous sets, skin prickers, syringes with needles or butterflies, while giving direct patient care or clearing up after a procedure. In contrast all the learner nurses were exposed to splashes of body fluid while giving patient care or clearing up afterwards, such as coughing in their faces after taking medication, or a splash with contaminated washing water while emptying a used washbasin.

Most of the incidents took place in the busy periods of the day shift, on weekdays and a few hours into the shift. More registered professional nurses than learners were exposed. Two incidents took place in the theatre in the evening at the end of the day shift. The only conclusion to be drawn from this is that staff that has been on duty for a few hours is more prone to exposure on duty. This conclusion is confirmed by the literature: the more exhausted the worker is, the fewer staff on duty per shift and the more pressure of work is exerted on individual staff members, especially on night duty, the greater the risk of sustaining an injury on duty (Radecki *et al.*, 2000:Online; Balachandran, 2002:Online). Tired staff shows an inevitable decline in vigilance, cognitive ability and motor function (Ayas *et al.*, 2006: Online).

Official exposure-on-duty protocols

The occupational and human resource sections of the health care facility must ensure that exposed staff follows the health care facility's prescribed injury and/or exposure-on-duty protocols. Telephone calls and/or official reminder letters may be used to help staff remember, or arrangements may be made for phlebotomists from private laboratories to visit busy staff members at work to take the required blood specimens.

Concluding remarks

"...Somewhere out there,
Someone's been infected with a deadly virus
just because they went to work one day..."

Lynda Arnold
Staff interview, 1998

This is the reality with which nurses in most health care institutions in Southern Africa are confronted every day.

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